

**Before the
Federal Communications Commission
Washington, D.C. 20554**

In the Matter of)	
)	
Satellite Delivery of Network Signals to)	CS Docket No. 98-201
Unserved Households for Purposes of the)	RM No. 9335
Satellite Home Viewer Act)	RM No. 9345
)	
Part 73 Definition and Measurement of)	
Signals of Grade B Intensity)	
To: The Commission		

COMMENTS OF DECISIONMARK CORP.

Jack Perry
President and Chief Executive Officer

Decisionmark Corp.
200 Second Avenue, S.E.
Suite 300
Cedar Rapids, Iowa 52401-1201
Telephone: 319.365.5597
Facsimile: 319.365.5694

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Summary

Decisionmark has developed expertise in creating computer-generated signal area maps to implement the Satellite Home Viewer Act (“Act”). Decisionmark offers a neutral, market-based solution to facilitate compliance with the Act. The Company believes that the Longley-Rice Irregular Terrain Model in point-to-point mode, conjoined with geocoding, provides the most accurate predictive model currently available for use by the satellite and broadcast industries and consumers in predicting the presence or absence of Grade B service at a specific location.

The Company has developed three software tools in particular that have already proven to be an aid in assisting satellite providers, local broadcasters, and consumers. Geneva™ is a software technology based upon geocoding and the Longley-Rice model. Using Geneva, the address of a particular household may be entered, and a list of all local broadcast affiliates that are predicted to provide that household with Grade B service or better will be instantly displayed.

WaiverTV™ is a waiver request processing tool designed for network broadcast affiliates. It is a free Internet-based application by which network affiliates can review consumer requests for a waiver to receive satellite delivery of a distant network station. It incorporates the Geneva technology and enables local affiliates to identify and locate each subscriber with respect to the station’s predicted Grade B service area. WaiverTV also possesses database management capabilities to assist broadcasters in dealing with waiver requests.

Getawaiver.com™ is an on-line software service offered free to consumers. The service,

which also incorporates the Geneva technology, streamlines and simplifies the waiver requesting process for consumers. After an address is entered, the tool determines from which network affiliate(s) a waiver is required, and it can automatically send requests to the WaiverTV implementation of the appropriate affiliate(s).

These tools, together with Decisionmark's proprietary television engineering database, Coronado, provide satellite carriers, broadcasters, and consumers a unique, neutral conduit through which to navigate the complex issues of compliance with the Act in simple, quick, and cost-efficient ways.

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Decisionmark Corp. (“Decisionmark”) submits these comments in response to the Commission’s *Notice of Proposed Rule Making* (“*Notice*”), FCC 98-302, released November 17, 1998, in the above-captioned proceeding.

I. Preliminary Statement

Decisionmark is an Iowa-based computer software company. The Company has expertise in mapping, geocoding, and data mining and has created various software tools to assist broadcasters, satellite carriers, equipment dealers, and consumers in complying with the Satellite Home Viewer Act (“SHVA” or “Act”). Decisionmark’s homepage on the World Wide Web is located at www.decisionmark.com.

The *Notice* seeks comment on a variety of issues related to whether a household is “unserved” by local broadcast network stations within the meaning of the Act and thus eligible to receive distant broadcast network service by satellite. In particular, the *Notice* seeks comment

on whether the Longley-Rice methodology can be used in conjunction with a commercially available geocoding process to provide a predictive model for satellite providers, broadcasters, and consumers to use in determining whether a given location is presumed to be unserved.¹ Decisionmark has developed computer software and data to facilitate the use of a Longley-Rice methodology as a predictive aid in determining which households are likely to receive an over-the-air signal of Grade B intensity. Decisionmark's services are available to assist the broadcast and satellite industries and the public in implementing the Act in quick, simple, and cost-efficient ways. The Company offers a market-based, neutral solution to implementation of the Act.

II. Decisionmark Tools for SHVA Compliance

Decisionmark Background

In August 1996, a local ABC affiliate contacted Decisionmark. It was having problems evaluating the eligibility of satellite subscribers within its local viewing area who were receiving distant network service. The affiliate was using paper maps to identify, manually, the location of satellite subscribers in the station's service area. After a subscriber was located, the affiliate would then determine whether the subscriber was likely to receive a signal of Grade B intensity from the affiliate. Not surprisingly, this process was slow, cumbersome, and expensive. Decisionmark, at that time, had already developed a desktop mapping program, Proximity[®], that it then customized to identify and locate subscribers for the affiliate more easily and accurately. The affiliate was pleased with the results, and, consequently, Decisionmark began to market this new software, Proximity[®]TV, to other affiliates. Soon, three of the four broadcast networks,

¹ See Notice at ¶ 34.

ABC, CBS, and Fox, came to rely upon ProximityTV as a method of identifying households that are predicted to receive Grade B service from a local affiliate. ProximityTV remains widely used today by major network affiliates, including several NBC affiliates, for SHVA compliance monitoring. As currently structured, ProximityTV provides five signal area maps, two of which were constructed utilizing FCC data and three utilizing the Longley-Rice algorithm. The fifth map also takes into account co-channel and adjacent channel interference. Using a proprietary procedure, Decisionmark's software displays each subscriber's resident address as a specific point on a map. Once the location of a subscriber's satellite dish is known in relation to an affiliate's predicted Grade B signal, the affiliate can decide whether to challenge the subscriber's eligibility.

Decisionmark was subsequently selected by the broadcast and satellite industries to perform the data processing for the "Red Light/Green Light" settlement between the National Association of Broadcasters ("NAB"), Primestar, and Netlink.² The "Red Light/Green Light" agreement relies on "presumptions" of eligibility within a local station's Designated Market Area ("DMA")³ based on the Longley-Rice model. The presumptions may be rebutted with an actual signal measurement test. Under the agreement, the predicted signal strength across each ZIP Code is analyzed. A "Red Light" status is assigned to those ZIP Codes within a local station's

² See Notice at ¶ 24 n.53 (discussing this settlement). Decisionmark was thus involved with the broadcast industry/Primestar-Netlink settlement agreement; Decisionmark is also providing assistance to PrimeTime 24, in connection with the injunction in *CBS, Inc. v. PrimeTime 24 Joint Venture*, No. 96-3650-CIV-NESBITT (S.D. Fla. July 10, 1998). Cf. Notice at ¶ 42.

³ Regarding the agreement, reference to "DMA" includes DMA-plus counties.

DMA that are predicted to receive a signal of at least Grade B intensity. Households located within these ZIP Codes are presumed to be “served” by one or more local stations affiliated with that network and will not be sold distant network service unless the presumption of ineligibility is rebutted and overcome by an actual signal strength measurement test. A “Green Light” status is assigned to those ZIP Codes within a local station’s DMA that are predicted to be unable to receive a signal of at least Grade B intensity. Households located within these ZIP Codes are presumed eligible to receive a distant network signal unless, again, the presumption of eligibility is overcome by an actual test. Decisionmark provided technical support for negotiations between the representatives of the NAB and the two satellite providers.

Under the broadcast industry/Primestar-Netlink agreement, the parties agreed that the relevant geographic area for each station is its DMA, as noted above. Obviously, predicted Grade B signal intensities are not aligned with ZIP Code boundaries. *See* Exhibit 1 (illustrating the difference between ZIP Code areas and predicted signal areas). The “Red Light” or “Green Light” classification of a ZIP Code area is resolved on a population percentage basis, i.e., if 50+% of the population in a given ZIP Code is predicted to be able to receive a signal of at least Grade B intensity, then the entire ZIP Code is given “Red Light” status. Consequently, within certain areas, some consumers may be presumptively classified as “served” when they cannot receive an actual signal of Grade B intensity from their local affiliate(s). These consumers can request waivers from their local network affiliate(s). Conversely, some viewers are presumptively classified as eligible to receive distant network service when, in fact, they receive a signal of Grade B intensity from their local affiliate(s); in these cases, the affiliate(s) can rebut the presumption with an actual measurement. The “Red Light/Green Light” agreement, as implemented through Decisionmark’s technology, provides both broadcast stations and

participating satellite providers a quick determination of presumptive eligibility for each household requesting distant network service.⁴

The Geneva Technology

In the course of the development of the software used in the broadcast industry/Primestar-Netlink agreement, it became clear that a “household-based” point-of-sale solution was needed, and Decisionmark therefore created the “GenevaTM” technology based on the Longley-Rice model.⁵ Using Geneva, the address of a particular household may be entered and a list of all stations that are predicted to provide the household with Grade B service or better will be instantly displayed. Geneva yields “address specific” data while the “ZIP Code” methodology yields data aggregated over the area of an entire given ZIP Code. The Geneva system, therefore, is more precise and more accurate for each household. The speed, accuracy, and ease of use of this system are unmatched, and the technology can be easily integrated into existing systems for high volume usage.⁶ In addition, although Geneva, as currently implemented, provides results for predicted Grade B service, it is readily adaptable to any service standards adopted by Congress, the Commission, or negotiated industry agreements.

The satellite carrier PrimeTime 24 is currently implementing subscriber-base analysis

⁴ See generally SHVA Compliance Solutions, Red Light/Green Light Solution <www.decisionmark.com/bcentral/rglight.html>. Although the Red Light/ Green Light agreement provides a workable compromise, it is imperfect. Its limitations are what drove Decisionmark to develop other technological solutions, most notably WaiverTV and getawaiver.com, both of which are discussed below.

⁵ The name Geneva was chosen because it universally connotes neutrality. Decisionmark has filed for a patent on the Geneva technology.

⁶ See SHVA Compliance Solutions, Geneva Technology Solutions <www.decisionmark.com/bcentral/geneva.html>.

and point-of-authorization eligibility screening for its distributors using the Geneva technology.⁷ The subscriber-base analysis will determine which current subscribers are predicted to be eligible to receive a distant network package under the SHVA. The analysis is superior to any other system now in use. PrimeTime 24's distributors now have the ability to enter a potential subscriber's address and, within seconds, determine if that address is likely to receive from a local affiliate a signal of at least Grade B intensity. Some distributors have implemented the technology into their call center software. A decision can then be made by the satellite provider whether to conduct a site measurement. The Geneva technology permits PrimeTime 24 to comply, in a quick, cost-efficient way, with the terms of the court injunction issued in *CBS, Inc. v. PrimeTime 24 Joint Venture*, No. 96-3650-CIV-NESBITT (S.D. Fla. July 10, 1998). That injunction prohibits PrimeTime 24 from supplying CBS or Fox distant network programming to any consumer within an area shown on Longley-Rice propagation maps as receiving a signal of at least Grade B intensity of a CBS or Fox primary network station, unless written consent is obtained or an actual test is conducted at a consumer's home showing the household is "unserved" within the meaning of the SHVA.

WaiverTV for Broadcasters

Recently, Decisionmark has incorporated the Geneva technology into its newest products, WaiverTV™ and getawaiver.com™. WaiverTV is a waiver-processing tool designed for network broadcast affiliates. It is an Internet-based application, currently free to all broadcasters, that streamlines review by network affiliates of consumer requests for a waiver to receive satellite delivery of a distant network station. WaiverTV went "on-line" in October 1998, and

⁷ See Notice at ¶ 42 (noting PrimeTime 24's use of Decisionmark's methodology).

this new tool is now being used by hundreds of affiliates. The service has been exhaustively researched and tested. The new Decisionmark WaiverTV website is located at www.waivertv.com. For screen shots of what WaiverTV looks like on the web, see Exhibit 2.

The court's injunction in the Miami case underscores the need for WaiverTV. Network affiliates will need assistance in the coming months in dealing with subscribers whose distant network satellite service must be terminated by February 28, 1999. Some of these subscribers may not be able to receive a signal of Grade B intensity from a local affiliate. This technology enables local affiliates to identify and locate each subscriber and will assist affiliates in determining whether an actual signal measurement is warranted. An important feature of WaiverTV is its ability to electronically queue waiver requests submitted from individual subscribers online, which simplifies the waiver request review process and helps assure that viewer communications with a station do not go unanswered.

Getawaiver.com for Consumers

Getawaiver.com is an Internet-based service offered free to consumers. The service streamlines and simplifies the waiver requesting process for consumers. In the past, when subscribers were told by their satellite carriers that they needed a waiver from one or more local network-affiliated stations, subscribers frequently had to make numerous telephone calls to determine which stations should be contacted. For example, some households in Lake Geneva, Wisconsin, would have to request 15 waivers—three from different ABC affiliates, four from different CBS affiliates, four from different Fox affiliates, and four from different NBC affiliates. With getawaiver.com, a consumer needs only to access the getawaiver.com website and enter his or her address. After an address has been entered, getawaiver.com then determines from which

network affiliate(s) a waiver is required, and it automatically sends the requests to the appropriate affiliate(s). As its name implies, getawaiver.com is available at www.getawaiver.com. For screen shots of what getawaiver.com looks like on the web, see Exhibit 3.⁸

Where an affiliate does not participate in WaiverTV, getawaiver.com provides that station's address and phone number so that the consumer can contact the affiliate directly. Although not automated in such circumstances, getawaiver.com is still a time saver for consumers. It provides the consumer information instantly on which non-WaiverTV participating stations need to be contacted and how to do so.

Getawaiver.com and WaiverTV work together and complement each other. A

⁸ Decisionmark has also recently entered into an alliance with Winegard Company, a leading manufacturer of television receiving antennas. From the getawaiver.com website, consumers will be directed to a new website, www.iwantmyfreetv.com, from which they can purchase an off-air antenna or find the nearest dealer. When fully implemented in the near future, the new site will employ the same Decisionmark technology, utilizing the same criteria, to help consumers select the appropriate antenna for their household's location. As with getawaiver.com, the consumer need only enter his or her address. The Decisionmark technology then geocodes the address and will recommend the appropriate Winegard antenna based on the household's relative location to local broadcast affiliates. In addition, in January 1999, Decisionmark will introduce www.antennaselector.com. This site will be a tool to aid retailers in making the appropriate antenna recommendation at the point of sale. All of these tools are designed specifically to assist the consumer in receiving broadcast network television service.

consumer's getawaiver.com's waiver requests are automatically fed into the electronic queue with the affiliates' customized WaiverTV implementation. The entire process is, therefore, automated. In addition to this double streamlining for broadcasters and consumers, satellite operators also benefit, for now they have a place to which they can direct customers who think they may qualify for a waiver.

III. Predicting Signal Areas Using the Longley-Rice Algorithm

The Longley-Rice Irregular Terrain Model is a computer model that uses information about broadcast and receiver antennas, the terrain between them, and various parameters for climatic, atmospheric, and ground characteristics to predict the received strength of a broadcast signal. The model is statistical, and it requires inputs for the desired time variability, location variability, and confidence level. The Longley-Rice model can be used in an area prediction mode or in a point-to-point mode, in which location variability is fixed. The area prediction mode, while computationally simple, is less accurate than the point-to-point mode. The Longley-Rice method can also be used to calculate interference. The Commission recently used the Longley-Rice model to predict service areas in its DTV allocation proceeding. In point-to-point mode, Longley-Rice calculations are fairly insensitive to changes in climatic, atmospheric, and ground characteristics as well as to the receiving antenna parameters. Terrain elevation data and broadcast antenna characteristics are well-defined. The major sources of variation in the predicted signal strength are due to the user-selected inputs of time variability and confidence level. The Longley-Rice methodology is generally recognized in the industry as the most reliable yet computationally tractable method for predicting broadcast signal strengths.

When calculating coverage areas under Longley-Rice, an area is broken up into a number

of small cells, and the signal strength at any point within a cell is interpolated from the predicted signal strengths at the corner of the cells. Cells with sides of one mile or of two kilometers are typical, although smaller cells can be specified. As anyone who lives in a mountainous area or in a river valley knows, the terrain in a one square mile area can vary substantially. Prediction of the reliability of the signal to a given household must use the actual location of the household if meaningful results are to be obtained. Using geocoding technology, it is possible to locate the actual position of most households to within one arc-second of latitude and longitude.⁹

The Longley-Rice propagation model, in point-to-point mode, is the best means currently available of *predicting* Grade B signal intensity at individual locations. The *Notice* asks whether Longley-Rice can be readily modified to take co-channel and adjacent-channel interference into account.¹⁰ The answer is yes. To illustrate, Decisionmark has prepared five representative signal area maps for WTTG in Washington, D.C., showing (1) the Commission's current predicted Grade A contour, (2) the Commission's current predicted Grade B contour, (3) locations predicted to receive a signal of Grade A intensity as calculated by Longley-Rice, (4) locations predicted to receive a signal of Grade B intensity as calculated by Longley-Rice, and (5) locations predicted to receive a signal of Grade B intensity as calculated by Longley-Rice with interference taken into account. *See* Exhibit 4.

Based on its current implementation of Longley-Rice, Decisionmark does not believe incorporation of additional factors, including interference, buildings, and vegetation, would have a significant effect on the cost or practicality of utilizing the methodology for SHVA compliance

⁹ Although it varies with geographic location, one arc-second is approximately 90 feet.

¹⁰ *See Notice* at ¶ 34.

purposes.¹¹ Decisionmark has the capability to implement such modifications quickly.

Short of conducting an actual site measurement at an individual household, any model the Commission may adopt will necessarily be predictive. Decisionmark's technology was designed to work with either its own database or with data provided from other sources. All of Decisionmark's products, including Geneva, WaiverTV, ProximityTV and getawaiver.com, were designed to be highly adaptable.

IV. Decisionmark Is a Technology and Data Provider

Decisionmark is a neutral provider of market-based solutions. Because Decisionmark has been working with all interested parties for the past two years, it has a number of resources available to facilitate compliance with the Act. These resources include a proprietary television engineering database and a signal area prediction tool.

The Coronado Database

¹¹ See *id.* (requesting comment on cost and practicality).

An important component of the Decisionmark technology is Decisionmark's proprietary television engineering database, Coronado.¹² Coronado is widely viewed in the industry as a standard for signal area data, and Decisionmark is committed to maintaining its accuracy. Coronado began with the Commission's public domain information as its baseline, but it has been updated extensively.

Coronado includes affiliate-based information about which stations have satellite stations and translators, how many they have, and the call letters for each. The public domain FCC databases provide no correlation between main stations, satellite stations, and translators. Not only does Decisionmark maintain the link between the main stations and their satellites and translators, but it also makes corrections to any detailed information in the database, such as tower height, effective radiated power ("ERP"), and latitude and longitude. This is possible because the Company is in continuing contact with broadcast affiliates. The result is a highly accurate, widely relied upon signal area database.

Decisionmark's Proprietary Signal Area Prediction Tool

Decisionmark's proprietary signal area prediction tool permits customization of each signal area easily and quickly. It uses the Longley-Rice Irregular Terrain Model version 1.2.2 to predict signal strengths. The statistical inputs of location variability, time variability, and confidence can be easily varied to produce customized predicted signal areas. Receiving antenna height and calculation grid size can also be easily varied. Typical calculation speeds are less than one minute per signal area. This tool can also be easily used to calculate demographics, such as

¹² See SHVA Compliance Solutions, Coronado: Decisionmark's Proprietary Signal Area Database <www.decisionmark.com/bcentral/simdata.htm>.

population size, number of households, etc., for a predicted signal area. An example of calculation speeds and processing capacity are demonstrated in Exhibit 5. The upper map shows a national view of the affiliate signal areas of a major network calculated using the Longley/Rice Grade B 99/99/99. The lower map shows that same national view with Longley/Rice Grade B 50/50/50 signal areas. Each map shows signal areas for approximately 1200 antennas—the processing time for each map was approximately two hours.

Decisionmark Offers Assistance

Should Congress or the Commission choose to examine any aspect of Grade B signal intensity for purposes of the SHVA, Decisionmark can provide assistance in many forms.

- * The Coronado database, in conjunction with Decisionmark's proprietary signal area prediction tool, can be used to answer "what if" questions regarding the effects of different parameters on predicted Grade B signal areas and the demographics of the populations they would affect. At one minute per signal area, the answer to such "what if" questions is never more than 751 minutes away.
- * Decisionmark's technology can be used to identify changes to broadcast affiliates' predicted signal areas, and it can distribute maps online.
- * Decisionmark's Coronado database can be leveraged, via a licensing agreement, for other beneficial uses. Coronado is a television engineering database that is 100 percent affiliate audited and is continually maintained. Decisionmark's continuing relationships with affiliates ensure that Coronado includes information for every main station, satellite station, and translator. Despite this close tie to affiliates, Decisionmark is seen as neutral by satellite companies.

Following two years of continuous effort, Decisionmark finds itself in a unique position. No other company in the industry can deliver the technology and data as accurately and timely as Decisionmark. What the Company has discovered is a crucial need for a conduit through which satellite providers, broadcasters, and consumers could go in dealing with SHVA compliance issues. Decisionmark believes that, above all, such a neutral conduit—utilizing one agreed-upon or mandated methodology and one agreed-upon or mandated database—is needed so the consumer doesn't suffer needlessly.

In addition to being in a position to provide assistance and solutions for the Commission in this rulemaking, Decisionmark has the capacity to implement any "predictive" signal strength standard that may be proposed by the Commission, Congress, or the affected industries.

Respectfully submitted,

DECISIONMARK CORP.

By _____
Jack Perry
President and Chief Executive
Officer

Decisionmark Corp.
200 Second Avenue, S.E.
Suite 300
Cedar Rapids, Iowa 52401-1201
Telephone: 319.365.5597
Facsimile: 319.365.5694

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Exhibit 1

ZIP Code Area/Predicted Signal Area Map

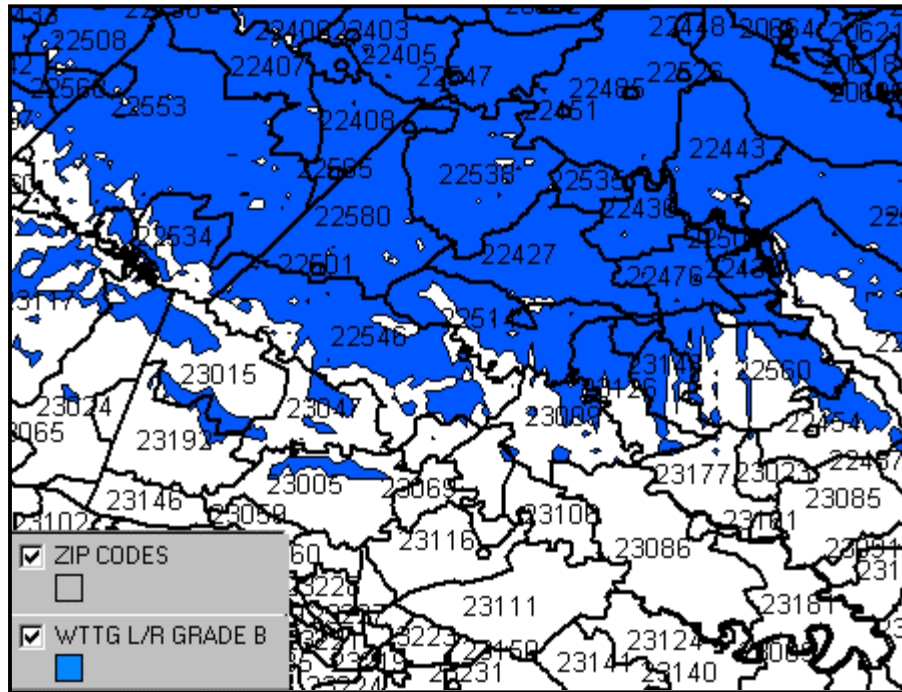


Exhibit 2

WaiverTV®

WaiverTV is a simple, three-step process.

Step 1: Enter the address of the viewer who is requesting a waiver.



Step 2: This screen opens, showing the location of the household in relation to the signal area. The waiver processor chooses to Grant or Deny the waiver request.

Step 3: The waiver result is confirmed. The waiver processor may choose to view a session report or process another waiver request.



getawaiver.com[®]

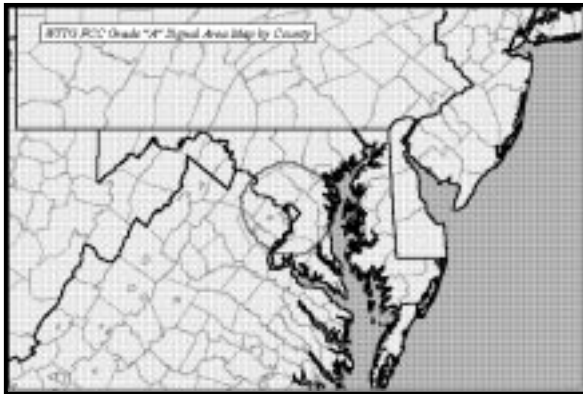
Step 1: A viewer enters his or her address.



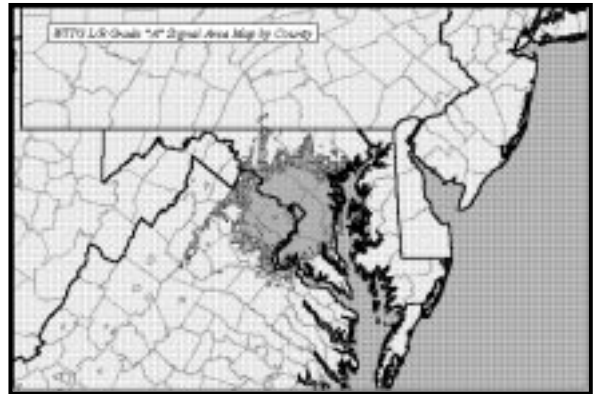
Step 3: The waiver request is confirmed. Affiliates who use WaiverTV™ automatically receive the requests electronically. Contact information is provided for those affiliates who don't use WaiverTV.



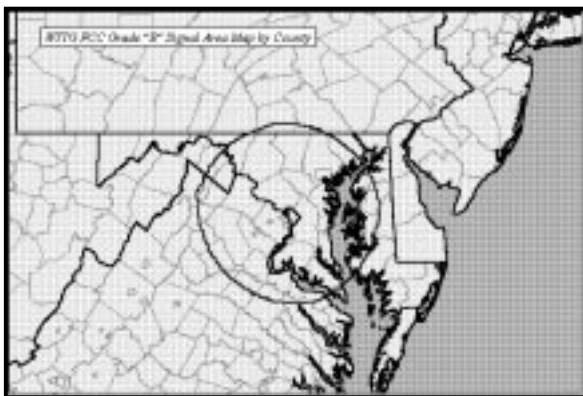
Exhibit 4



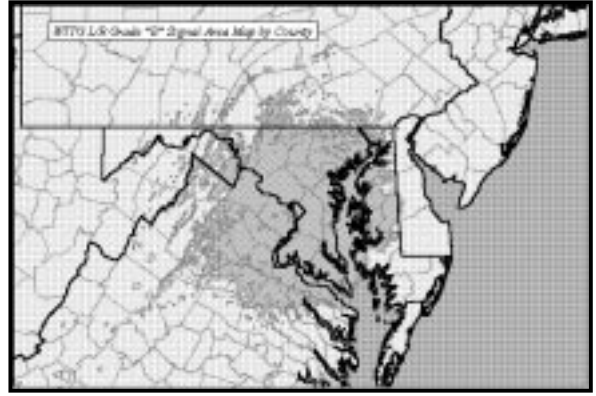
WTTG FCC Grade "A"
Signal Area Map



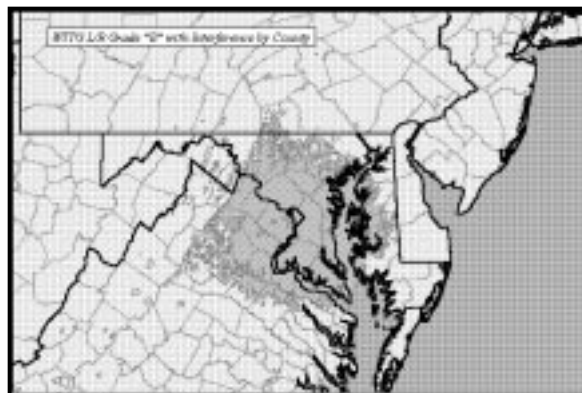
WTTG Longley-Rice Grade "A"
Signal Area Map



WTTG FCC Grade "B"
Signal Area Map



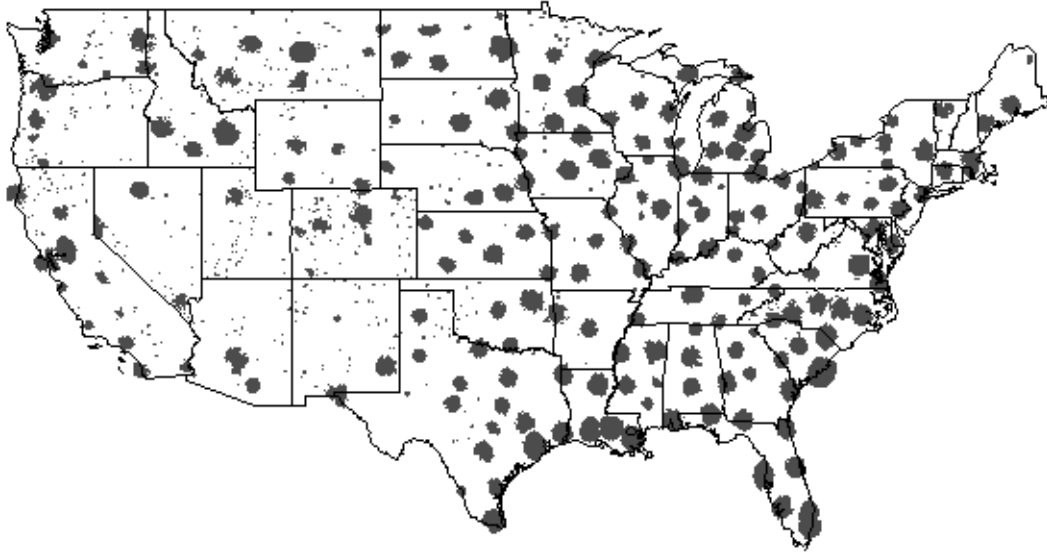
WTTG Longley-Rice Grade "B"
Signal Area Map



WTTG Longley-Rice Grade "B"
Signal Area Map with Interference

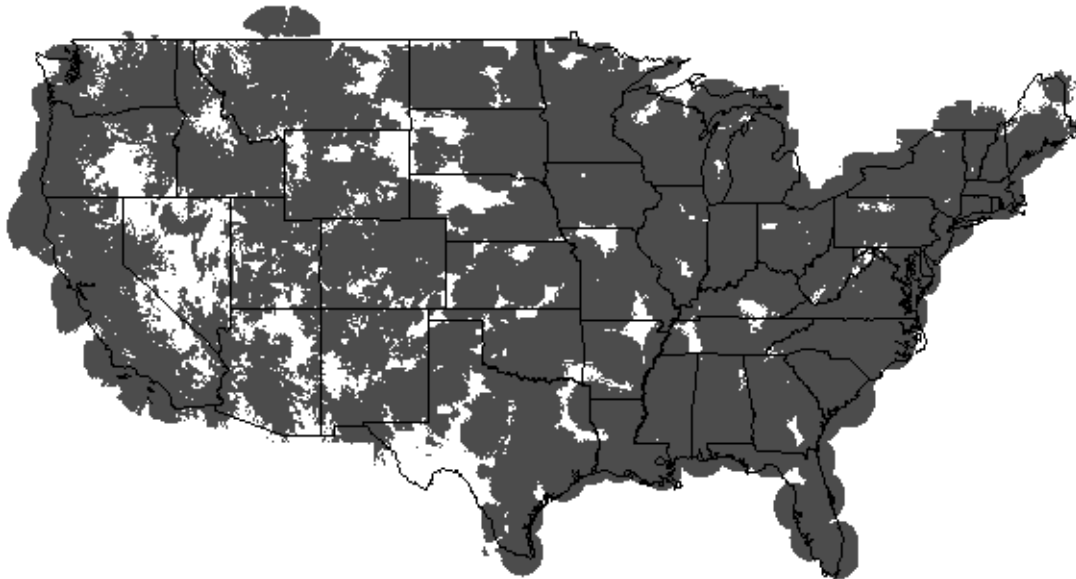
Exhibit 5

Calculation Speeds and Processing Capacity: 1200 Antennas in Only Two Hours



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99% Time, 99% Location, 99% Confidence



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50% Time, 50% Location, 50% Confidence

